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GOVERNMENT OF THE
PROVINCE OF ALBERTA

CONNECTION OF GROUNDING CONDUCTORS IN NON-METALLIC OUTLET AND FLUSH DEVICE BOXES.

Numerous enquiries received indicate that it may be desirable to clarify whether it is necessary for non-metallic outlet boxes used with non-metallic systems to be equipped with terminal bars or straps for connection of the associated grounding conductors.

When installations involving non-metallic boxes are undertaken it is necessary, in order to meet the Canadian Electrical Code requirements, (see Rules R12-076 and R12-108) where more than one grounding conductor enters a box, that all such conductors be in good electrical contact with each other by either securing all grounding conductors under grounding screws, or by connecting them together by an acceptable solderless lug. Accordingly, it is only considered acceptable practice to omit the grounding bar or strap in non-metallic outlet boxes in which flush devices are mounted, or fixtures attached, when the flush device or fixture incorporates a grounding screw for attachment of the grounding conductor and connection of the conductors is undertaken so that removal of the flush device or fixture does not disturb in any way the continuity of the grounding circuit. However, where flush devices or fixtures do not incorporate grounding screws, or terminals, and the grounding continuity to the equipment depends on a connection to the mounting strap of the unit, the grounding devices made available by the manufacturers of the outlet boxes shall be installed.

ADDITION OF THERMAL PROTECTION TO FLUORESCENT LAMP BALLASTS.

Because of the serious field difficulties which are being experienced, due to overheating of fluorescent lamp ballasts, an intensive investigation of this problem has been conducted by the Canadian Standards Association Laboratories. The results of this investigation were reported to, and discussed by, the C.S.A. Approvals Council (Electrical) at a recent meeting. On the basis of the Laboratories' findings, a recommendation was made that fluorescent lamp ballasts, and fluorescent lighting fixtures, intended for connection to a supply of 300 volts or less, manufactured subsequent to January 1, 1962, be provided with thermal protection.

In accordance with the above a directive has now been issued to the manufacturers of fluorescent ballasts, and fluorescent fixtures, requiring that all units manufactured after January 1, 1962, and intended for connection to a supply of 300 volts or less, be provided with this protection in order to be eligible for C.S.A. certification. It will also be mandatory that fixtures containing ballasts incorporating these protective devices be marked to indi-

cate that they are so equipped. This marking may be included in the fixture label, or it may be a separate marking adjacent to the label.

It is pointed out that fluorescent lighting fixtures certified by the C.S.A. Laboratories in accordance with these new requirements are suitable for installations falling within the scope of C.E. Code Rule R30-102. In such cases the fixtures may be mounted directly on low density cellulose fibreboard and no additional precautions need be taken. In addition, it is emphasized that when fluorescent fixtures meeting these new requirements are available fixtures not incorporating thermally protected ballasts will no longer be considered acceptable for mounting on low density cellulose fibreboard.

OPEN WIRING FOR OUTDOOR LIGHTING - RULE 32-046 (b) (PIN TYPE SOCKETS).

On Page 3 of the July 1960 Alberta Quarterly Bulletin it was indicated that pin type sockets should not be used in conjunction with open wiring for outdoor lighting, such as is frequently used for car sales lots, etc., unless, or until, lampholders are available which will accommodate properly the type of conductor listed so that the requirements of Rule 32-046 (b) are met.

Information received from the Canadian Standards Association Laboratories indicates that pin type lampholders are now available which will accommodate the type of wire required for installations falling within the scope of Clause (b) of the subject rule. Enquiries have confirmed that these materials are, also, now readily available and obtainable from electrical distributors in the Province.

Further information as to the acceptable types of lampholders for such applications can be obtained from the Provincial District Electrical Inspection Offices.

CALCULATION OF CONDUIT SIZE FOR TYPES OF CONDUCTORS HAVING DIMENSIONS DIFFERENT THAN THOSE LISTED IN TABLE 10.

It is evident that there are instances where Table 10 is incorrectly used as a reference in determining the cross-sectional area of conductors having insulation of a type not shown in the table, for purposes of establishing the maximum allowable number of conductors permitted in a given size of conduit.

Rule R4-016(2)(c) requires that the cross-sectional area of conductors, of types other than those included in Table 10, be calculated from the nominal overall diameter of the conductor. Application of this principle is particularly important when conductors such as types RWU, RHU,

etc., are involved, and which have a greater nominal overall diameter than those included in Table 10, due to an additional thickness of insulation and/or the application of an outer jacket. In such cases the overall nominal diameter of the conductors shall be established by actual measurement, with suitable micrometer calipers, or by reference to the manufacturer's dimensional data and the cross-section area calculated therefrom.

LUBRICANTS FOR APPLICATION TO CONDUCTORS AND CABLES DURING PULLING-IN OPERATIONS.

Reports are continuously received of instances where lubricants having a deteriorating affect on insulations have been, or are being, applied to conductors and cables to facilitate their installation in conduits or ducts.

It is quite apparent from research projects now completed that the main requirements of pulling compounds are that they be free from uncombined alkali, fatty acids, mineral oils or greases. Also, it is generally recognized that such products as graphite and talc do not have a deteriorating effect on rubber or synthetic insulations and are effective agents for the applications concerned.

While there is presently no specific product available bearing C.S.A. certification for the purposes mentioned, the Laboratories have undertaken a testing program directed toward eventual certification of wire and cable pulling compounds. According to the latest information available in this regard at least one active application for certification of such a product is now before the Laboratories. There are, however, a number of wire pulling compounds commercially manufactured in the United States which are certified by the Underwriters' Laboratories and are so listed.

Until such time as C.S.A. certified pulling compounds are available those approved by the Underwriters' Laboratories should be used. Alternatively, such products as graphite and talc which do not have a deteriorating effect on rubber or synthetic insulations are to be used for wire pulling operations.